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between St. Petersburg and Svir, also to Keksholm, Valaam, and Serdopol. These steamers take goods as well as passengers from St. Petersburg; but towing lighters across the lake does not seem to flourish, particularly from Svir.

Altogether the navigation of the lake is in a bad state, and has made but very little progress for the last 150 years. As an illustration of the primitive nature of the navigation, the speed of a vessel is determined by burning a tallow candle, and no attention whatever is paid to the rules laid down for navigating.

The masters of the vessels consider keeping charts a work of supererogation; they do not even use the compass properly, and consider its deviation, owing to the influence of iron, as the work of supernatural agency.

#### 10.—*On the Physical Geography of the Queen Charlotte Islands.*

By ROBERT BROWN, F.R.G.S., &c. &c.

FINDING that little is known regarding this interesting group of islands lying off the North-West Coast of America, and a dependency of the colony of British Columbia, I have drawn up this short account, derived almost entirely from observations made during a visit in the spring of 1866.

1. *History of their Discovery.*—These islands were undoubtedly first discovered by Ensign Juan Perez, in the Spanish corvette *Santiago*, on the 25th of January, 1774. La Perouse suspected their separation from the mainland; but it is to Capt. Gray, an American trader, and the discoverer of the Columbia River, that the credit of the first exploration of the coast-line is due. However, it ought to be mentioned that, two years previously (viz., in 1787), Capt. Dixon, commanding the merchant-ship *Queen Charlotte*, of London, had become convinced of their insularity, and applied the name of his ship to the group. Gray, apparently unaware of the prior discovery of Dixon, named them also after his vessel, the Washington Islands or Island, for up to a very recent period this group, now known to be composed of three main islands, were always supposed to be one island, and spoken of in the singular, as, in ordinary parlance, they are still on the north-west coast. Captains Duncan, of the *Princess Royal*, and Douglas, of the *Iphigenia*, about the same period explored portions of the coast, and conduced to our knowledge of their complete insularity. Meares, no doubt, endeavours to secure for Douglas the credit of establishing this point, but I think on insufficient grounds.

Ingraham, in 1791, also visited them and made some explorations. In a work published by him and Dixon, giving a narrative of their voyage, will be found some interesting information about their natural history and the language of the natives. In 1792 Captain Jacinto Caamano, commanding the Spanish corvette *Aranzazu*, cursorily surveyed the northern end of the islands. Since that period they have been regularly visited by traders; the officers of some of which have added a little to our knowledge by surveying some of the harbours and inlets separating the different islands. Under this head the names of Captain G. H. Richards and his officers deserve honourable mention. Of late years the discovery of gold, copper, and coal on these islands, and the establishment of the colonies of Vancouver Island and British Columbia (now united under the latter name) have attracted more attention to the group; though they are still very little known, even on their coast-line, and their interior is entirely unexplored.

During the few weeks which I passed on the islands I was confined almost wholly to Skidegate Bay, the period of the year not allowing of any journeys being made at a great distance, and the Indians declining to travel unless

when paid exorbitantly, the attraction of our vessel being too much for them. It being necessary for the purposes of the miners, who had come up to examine the coal to be subsequently described, that the vessel should be moored, we were unable to avail ourselves of it to make any explorations. I, however, gained a fair general idea of the vicinity of our anchorage, and collected from the Indians, &c., much information which may lead to further examination; and in default of something better, I think that I am justified in presenting it to you.

2. *Topography of the Islands.*—These islands lie between  $54^{\circ} 20' \text{ N. lat.}$  and  $51^{\circ} 55' \text{ N. lat.}$ , between the extremes of  $133^{\circ}$  and  $130^{\circ} 35' \text{ W. long.}$ , and at distances varying from 20 to 80 miles according to the trend of the coast, from the nearest islands lying immediately off the mainland. It is only on very clear days, and at the narrowest portion of the strait that they can be seen from the mainland or *vice versa*, and then only as a hazy outline.

They are separated by two narrow channels into three main islands, viz., Graham Island, Moresby Island, and Prevost Island, though many smaller islets lying off the coasts of these larger ones, narrow still more the inlets separating them. North Island or “Katssequaye” of the Indians is the most northerly point, and Cape St. James on Prevost Island is the Land’s End of these remote dependencies of England. Moresby Island is high and mountainous in the interior, but with a long stretch of flat land skirting the whole eastern coast of the island. The western shores of all the islands are much more rugged and precipitous than the eastern, and the southern islands are again much lower than the more northern ones. Skidegate Channel and Douglas Inlet (or “Chatlou”), separating Moresby from Graham Island, varies in width from 1 to  $2\frac{1}{2}$  or 3 miles, and is quiet and land-locked with many secure anchorages.

The island at the western entrance of Douglas Inlet the Indians call “Chalque,” and is claimed not by the Skidegates but by the Gold Harbour Indians. “Kanna” is the name of Cartwright Sound. The two sounds above it are called respectively “Keyw” and “Kanon,” and though not followed in are said to go very deeply into the land, cutting the island up in many places into peninsulas. Hippa Island is called “Quequetz,” Frederick Island “Naston,” and “Naisden” is the aboriginal name of Virago Sound. “Naiquez” is the name of Masset “spit”—a long projecting flat point, extending into a sandy shoal, often covered with boulder-drift and very dangerous to ships. On Rose Spit two ships were lost. In crossing the spit at the entrance to Skidegate Strait we knocked the false keel off our schooner. It would be therefore advisable for the Admiralty to have these surveyed. At Anthony’s Island is a deep inlet called “Laskeek,” which crosses nearly to the west coast. The Indians paddle up from about 6 to 12 o’clock, then haul their canoes over a narrow neck of land and launch them again in Tasso Harbour on the other side. In a little harbour called “Skofunkey” there are said to be immense numbers of sea otter. My informant described them as being as thick as ducks at a river-mouth in winter. About Tasso Harbour there is another small harbour called “Pawee,” where they are said to be equally numerous. Gold Harbour is generally called “Skitou,” but the name more particularly applies to Mitchell’s Harbour, a smaller anchorage off the main one. Douglas Harbour is “Scentæ,” and Mudges Harbour is called “Howtelm.” Kuper Island is “Skankeingwas,” and above Mudges Harbour in Port Kuper is another known as “Naawee,” while still further up is “Chowash.” Nearly all of the sounds are not known even by name to the whites, and others are marked on the chart as breaks in the coast-line, but unnamed or with no intimation of their extent. Some of them are united, being only separated into two by an island or islands blocking up their mouth; and accordingly, if followed in, it would be found that these islands

would present a totally different contour from what they do at present on the imperfect chart of the coast, and are of much less superficialities. The interior, as I have said, is yet entirely unexplored. The Indians pass through from certain places, as I shall notice in giving an account of the native tribes inhabiting the shores of the islands. The whole surface of the country is densely covered with forests of various trees, chiefly coniferæ, and a dense undergrowth of various species of shrubs. This, combined with the absence of deer, will render an exploration of the islands somewhat difficult; but I should suppose that the deep inlets cutting the islands on either side will be found to materially aid in the penetration of the country. The whole country in this region of the North Pacific is wooded; but that, as in the exploration of Vancouver Island, though rendering travel arduous in the extreme, yet was found not unsurmountable. The absence of large game for food is, however, more serious.

3. *Geology, Mines, and Metals.*—The general geological structure of these islands appears to be beds of conglomerate, slate, coal, and metamorphosed sandstone, resting upon erupted greenstone, and dislocated, tilted, and altered, so as to render the tracing of the beds, even where the dense layer of vegetable matter allows of this being done, a matter of some difficulty. On the north side of Skidegate Bay a tunnel has been driven into the hill in a westerly course, showing the structure of the beds. This tunnel is 112 feet long,\* and first penetrates, 1. coarse igneous-looking shales, splintering into conchoidal fractures; 2. a fine-grained slate, out of which the pipes and other ornaments so well known in European museums are cut; 3. coal; 4. coarse slate; 5. metamorphosed sandstone, apparently resting on the greenstone. These rocks are much disrupted, and there are many faults which, in a superficial examination, I did not find it possible to trace out. The strata on the two sides of the bay are not continuous. The general character of the stratification is shown on the sections.

The coal has all the character of anthracite, but is altered and metamorphosed by the presence of igneous rock in a remarkable manner. Some portions of the seam are soft, like gunpowder, and you may push your hand into the mass; while scattered here and there through this are seams of hard anthracite, agreeing in composition, mineral character, and heat-giving and burning properties with that valuable species of coal. Wherever an excavation is made, fire-damp accumulates in quantities. In Nanaimo (where the beds are of cretaceous age) there is no fire-damp; but, again, at Bellingham Bay (Upper Tertiary) it is abundant. Hitherto two companies have made some efforts to develop this, but have not yet been successful in obtaining any amount of this hard anthracite, the character of the beds being just as I have given it, varied from irregular jet-like seams to masses like wet gunpowder. Some 55,000 dollars have been spent on this prospecting, but without any return. If, however, anthracite could be found in abundance on the Pacific coast, the effect of this discovery in developing the mineral and other resources of the adjacent countries cannot be over-estimated. The following is an analysis of some averagely good specimens from this mine:—

Moisture .. .. .	5.10
Volatile combustible matter .. .. .	17.27
Carbon .. .. .	71.20
Ash .. .. .	6.43
	100.00
Specific gravity .. .. .	1.46

\* At the date of my visit, April, 1866.

It thus appears that it is almost as good as Pennsylvania anthracite for smelting purposes, its heat-giving properties being immense.

This fine slate,\* associated with the coal, is easily carved, and is extensively used by the Indians for making ornaments, such as elaborately ornamented pipes, flutes, statuettes, platters, &c., for sale to the whites in the southern towns; and many have found their way to Europe and into different museums, though their origin is not always very apparent from their labelling. Those who have once seen them can never fail to detect not only their material, but the peculiar, quaint, *outré* style of art displayed in their manufacture. In the metamorphosed sandstone are found (more particularly along the northern shore of the Strait) casts of a bivalve shell in considerable numbers, but hitherto this is the only datum we have to ascertain the age of the deposits. In the British Museum are now some of these remains, but with such fragmentary data it is questionable if any exact deductions can be arrived at as to the position of these peculiar coal-beds. I think, however, that there can be no reasonable doubt that these are much older than any other coal-beds on the North Pacific Coast; those in Vancouver Island, Washington Territory, Oregon, and California being either members of the Upper Secondary or Tertiary formations. For long periods large masses of virgin copper have been seen in the possession of the Indians, and used by them for making the large plates on which their *totems* or coats-of-arms are engraved, as will be afterwards described. Some of these pieces were perhaps traded from more northern tribes, but others have been undoubtedly found on the islands. Copper (chiefly in sulphates and carbonates) has been found at several places on the island, and at Gumshaw Harbour, on Moresby Island, a company was engaged for some time in working the ore, but have at present suspended operations for want of capital. It appears that the following indications were found:—1. A vein of copper traceable for 700 to 800 yards along the shore of Burnaby Island, from the east point beyond the miners' hut, along the s.s.e. shore towards the hut; 2. a cross copper vein, from where No. 1 is lost under the sea, running n.e. and s.w. across the promontory towards Blue Jay Harbour; 3. a very strong quartz vein, on the north side of Blue Jay Harbour, clearly visible; 4. a small horizontal vein, to eastward of No. 3—iron and copper, and mixed with quartz; 5. a clear and well-defined outcrop of a copper vein on Skincuttle Island, running n.n.e. and s.s.w., but cut off by a dyke; 6. a twisted and mixed outcrop of a copper vein, on opposite or n.e. side of Skincuttle Island; 7. a large quartz vein on George Island; 8. a large quartz vein at n.e. end of George Island, which crosses the island and meets No. 10; 10. a copper vein, rich in green carbonates, running s.s.w. and n.n.e.; 11. a vein of copper and iron on the mainland, at the entrance to Harriet Harbour, on the south side of Sockalee Harbour.† On some of the northern parts of the island copper has also been found, and one specimen gave on analysis 96 lbs. to the ton—value about 1400*l.* the ton. Half-way between Tasso Harbour and Awee (formerly referred to) the Indians say there is plenty of copper; and though, in general, such aboriginal statements ought to be received *cum grano salis*, yet in this case I see no reason to doubt them.

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\* When I call this rock "slate," I am, perhaps, giving expression to the vernacular name for it rather than stating a geological fact. In appearance it resembles cannel coal, dark, fine grained, with a (frequently) cubical fracture, and capable of taking a smooth bright polish. It has none of the fissile properties which we are apt to associate with the term "slate." However, for want of a better name, I will continue to speak of it as such. Those who are curious regarding it, can examine specimens brought from this locality by me, and now in the British Museum.

† For some of these particulars I am indebted to Mr. Robert Plummer, mining engineer, Victoria, Vancouver Island.

Though I have examined several of the small Queen Charlotte rivers (or streams flowing from the mountains), I was unable to detect any gold in their beds. However, gold has been found in quartz veins on the island in considerable quantities. As far back as 1850 or 1849 the Indians were in the habit of bringing rough gold to Fort Simpson, on the mainland, opposite Queen Charlotte Islands. At first they valued this lightly, and there is a tradition floating about the north-west coast, that a Kanaka, or Sandwich Islander, in the Hudson's Bay Company's service, while skinning a deer sold by an Indian, found that it had been shot with a nugget of gold.\* It is even said that in old times the Indians pointed their arrows with gold! Be this as it may, like the rest of mankind, they speedily discovered its value, and more than its value, for they put a most extravagant price on the pieces which they brought. On one occasion an Indian brought a very large piece of solid gold, free from quartz, to the fort, but refused to sell it unless at a ridiculously exorbitant price. This piece has now been lost sight of, and has not, as far as I can learn, been offered for sale, though the possession of such a piece was sure to be rumoured through among the natives or traders. This gold was soon found to come from a locality on the west of the island, now called Gold Harbour. The Indians lit fires over the vein, then dashed water over it when hot to disintegrate the quartz, and with the aid of tomahawks grubbed out the pieces, which they sold. In 1852 the Hudson's Bay Company sent up a party in the *Una*, under the command of the late Dr. Kennedy, who set to work to blast out the quartz from the auriferous leads, but they failed to find the spot where the large nuggets had been found; and though the natives pretended to show the locality, yet nothing approaching to their expectations was discovered. The Indians were powerful and fierce, and proved very troublesome. No sooner was a blast exploded, than hundreds rushed in and seized on pieces, so that what was collected bore but an indifferent ratio to what was stolen by the aborigines. To this day Indians bring down pieces to Victoria, and a periodical semi-excitement ensues over them; but they are in all likelihood only remains of these dubious acquisitions (though certainly it can scarcely be called robbery, as the gold miners were mere filibusters, striving no doubt to solve the problem of the dog in the manger). However, a considerable quantity was blasted out and brought down. I have a specimen, in which the gold is thickly scattered through the quartz, and the whole is described as having been exceedingly rich in the precious metal. The lead was, however, wrought out; nor has it ever been able to be traced since, notwithstanding the locality has again and again been searched by several experienced miners. The vein as originally found (in Mitchell Harbour, an anchorage of Gold Harbour, so called) was 7 inches wide, was traced for 80 feet, and contained 25 per cent. of gold in many places. The heaviest specimen of pure gold yet obtained from this locality weighed from 14 to 16 ounces.

In July, 1859, Mr. William Downie and party examined the place where the gold was taken out by the *Una* party, and found a few specks in a small quartz seam running through slate.† They then explored Douglas Harbour without any success, and afterwards proceeded to Skidegate Channel, which lies between Graham and Moresby's islands. They found trap and hornblende rocks, with a few poor seams of quartz, but no gold to the southward. To the northward they found talcose slate, quartz, and "red earth," but no gold; but coming upon coal in the Skidegate Channel (already described) they decided that further search was useless. They then blasted at Gold Harbour,

\* This must have been on the mainland, as there are no deer on the Queen Charlotte Islands.

† The existence of gold quartz veins alone goes far to prove the antiquity of these slates, so that in all probability they are members of the lower secondaries.

but without success. The conclusion they came to was that the gold (as found by the first party) existed in an offshoot, or a "blow," instances of which are very common. On such a discovery being made in California, hundreds of miners take claims in all directions near it, and test the ground in every way; but nothing is found except in the one spot, about 70 feet in length, running south-east and north-west. On being worked about 15 feet it would give out. Before work commenced, miners have been known to blow the sand off a vein of pure gold.\* Captain Robert Torrens, late Clerk of the Colonial Parliament of Vancouver Island, examined the country further north for gold, but without much success. He described the country north of Skidegate Channel as being low and thickly wooded, receding in one unbroken level to a huge range of mountains about 30 miles off. Vegetation is here luxuriant, and at intervals patches of open land occur, in which the Indians have planted crops of potatoes. He found some sulphurets of iron, containing, as is usual, a little gold, but on the whole the rich quartz veins of the Queen Charlotte's Islands remain to be discovered; and I do not doubt of the search being successful if followed up in an energetic, systematic manner, aided by a fair amount of practical skill, combined with scientific knowledge. Among other economic minerals I have found *steatite* on the shores of Skidegate Channel, and Mr. Farwell, C.E., brought me pieces from the neighbourhood of Masset Harbour (where there is also coal approaching to cannel coal), and the Indian told us of a mineral which is exposed at half-tide, at a place called *Chatlem*, in the first inlet above Hippa Island. They declare they can melt it down for bullets; and, if so, it is in all likelihood native lead. I have heard this story so repeatedly, that though unable to obtain specimens, I am forced to believe in its existence. Boiling springs are said to be found at *Clew*, on the southernmost island. These hot springs are found at different places in British Columbia, and many in southern Oregon; sometimes a boiling and an icy cold one within two yards of each other, a curious phenomenon, perfectly simple of explanation, viz., that the boiling one is of deep-seated origin, while the cold is only a surface spring. There are, however, no volcanoes, either active or extinct, in these islands, though Mr. Mallet places one erroneously on the northernmost island, in his 'Map of Earthquakes and Volcanoes.'†

4. *Climate, &c.*—Though situated so far north, the climate of the Queen Charlotte Islands, from their insular position, is much milder than that of the mainland. Some men who wintered upon them described the temperature as being moderate, little snow and a great deal of rain. Indeed, all north of Fraser River the climate is very moist. At Sitka it rains almost continuously, the average rainfall amounting to nearly 89 inches *per annum*. When I arrived, on 1st of April, all the snow had vanished off the lowlands, and the weather was mild and pleasant. Mosquitoes were abundant, and towards the end of the month humming-birds had begun to make their appearance. The tides, as all over the north-west coast, where there are so many inlets and circuitous bays, coves, and sounds, are very irregular, and little dependence can be placed on them. At Skidegate Harbour, on the 17th of April, 1866, the rise and fall of the tide, from careful observations by level, was found by my companion, Mr. Edward Stephens, C.E., to be  $27\frac{7}{16}$  feet.

5. *Ethnology of the Islands.*—The only people permanently inhabiting these islands are the Indians, generally known by the name of *Hydahs*, speaking one language, having the same personal appearance, and indeed in every respect one people, though politically divided into several tribes under different names. Physically, they are perhaps the finest race on the North-

\* See also Mayne's 'British Columbia,' p. 187.

† Brit. Assoc. Rep. 1856.

American continent, and indeed I am not exaggerating when I say that they are scarcely surpassed in appearance by the Western backwoodsman or hunter. The women are very good-looking, though often full in the face and somewhat *embonpoint*. Some of them would be judged to be pretty in almost any civilised community. They have, however, a most abominable custom of disfiguring the lower lip by inserting through it a bone ornament, concave externally and internally, which has the effect of causing the lip to protrude in a shelf-like form, than which nothing can be imagined more hideous. It is only the women who practise this, and until recent periods it was looked upon as a mark of the very lowest breeding to be without this labial "ornament." They commence to get it inserted when young, in the form of a metal tube, gradually increasing the size of the ornament, until it flourishes in all its full-sized ugliness. I have seen some stick a pin through the lower lip; and among the young girls who cannot make up their minds wholly to dispense with it, it is common to insert a thin hollow tube of silver. However, of late years the young ones have been giving it up, finding that it is not agreeable to their Caucasian admirers. The men and women are tall, muscular, and straight. The face is full, with well-formed head, not in any way disfigured or compressed, as in the more southern tribes, of an oblong form, features high, particularly the nose, mouth average, with the canthi rather pointing downwards, both the upper and lower lips, more especially in the women, slightly protruding. Their hands and feet are small, and well-formed. Their colour is very fair, and in the women, who are not much exposed to the weather, there is a mixture of red and white in their cheeks, not seen in any other aboriginal American race. Their eyes are horizontal, eyebrows rather sloping upwards, and not bushy. Tatooing on the back of the hands and arms, often into fanciful resemblance to the human features, is occasionally seen, and sometimes, as in the women, a few slight streaks (in blue) on the cheeks; but this is not universal. They wear their hair much shorter than the more southern tribes, among whom short hair is a mark of slavery, and most of the children have it clipped quite close; a most sensible arrangement, when we consider that their heads are not always free from vermin. Few of the men have any beard or whiskers. Some of them have occasionally bushy moustaches and "imperials." In their persons they are generally very clean, though their ordinary square or oblong board-houses are as filthy as among other tribes. Their average height is 5 feet 10 inches, though I have seen them measuring 6 feet. They move along with a stately gait and bearing, totally different from the lounging, waddling walk of the flat-head tribes of Vancouver Island, &c. The dress of the men now-a-days consists commonly of European clothes, bought from the traders; and that of the women, a calico dress with a green, blue, or scarlet blanket, with a peculiar hood, both plentifully ornamented with large rows of large mother-of-pearl buttons. The *deshabille* of both sexes is, as among all Indian tribes, merely a blanket. The women have their wrists, and sometimes their ankles, profusely ornamented with bracelets of native manufacture, made out of silver coin, obtained from the traders who visit them. They also wear earrings and rings of the same metal; and often these pieces of jewelry display wonderful skill and taste in the workmanship. Some of the children, whose parents happen just then to be able to afford it, have thick silver rings through the septum of their noses. When the *res angustiae domi* trouble them, the ring is speedily removed, and converted into more useful material.

The Hydahs are very bold warriors, but cruel and vindictive in the extreme. Pages might be filled with a narration of their lawless or bloodthirsty acts, which have made them feared and hated for hundreds of miles north and south of their country. Though generally friendly to visitors, they are not to be trusted in the slightest degree, and, having never yet felt the power of the



Whites, they consider that they may commit any outrage (if so it seems good to them) with impunity. Some years ago they fired on the boats of a British war vessel, and in 1854 they captured the American ship *Susan Sturges*, burning her down to the water's edge, after having plundered her of everything valuable, and then held the captain and crew as slaves until they were ransomed by the Hudson's Bay Company. There are men yet in Victoria who have been slaves among these savages. The ringleader in this act of piracy was the chief of the Skidegates, one of the mildest spoken and meekest men whom I have ever met in my life. When we entered his harbour he was polite enough to hoist the *Susan Sturges* flag over his lodge, and give us a salute with her guns standing in front of his door. He is a comparatively young man, but is hated in his tribe. That spring he had killed five men in a drunken quarrel, and now he never went abroad without being heavily armed. At night he would hesitate to go out of his lodge unless one of his wives was with him, fearing that, unseen by him, an assassin might be lurking in the dark. He rarely slept two nights continuously in the same place in his lodge, and his sleeping-place was a perfect armoury of weapons.\* Still later, the Massets. (another tribe of Hydahs) have been accused of the yet graver crime of murdering the whole crew of the schooner *Growler*. On the whole, they are far from being an unobjectionable race of people. They are very lazy, and are now, whether naturally or by the influx and visits of traders, thoroughly debauched in their morals. They are drunk whenever spirits can be obtained, and during these drunken orgies their whole vile passions get play. Though making a show of modesty, yet the chief ornament of the female heart is not found among their women; nor does it seem that prostitution implies any disgrace, or that female virtue is valued by the men. These women, both from their beauty and immorality, supply a large proportion of the abandoned Indian women who infest Victoria and all the southern towns during the winter; and they may even be found as far south as the Columbia River, and west even to the Cariboo gold-mines. Many of them accumulate considerable sums of money, which is again squandered among their debauched relatives and hangers on. In the summer they go north to recruit, spreading disease among their people and directly leading to the rapid extermination of their race. Old traders tell me that at one time they were as virtuous as any other Indian tribe before being visited by the whites, and this thorough immorality and debauchery is owing to corruption by the traders. I have no cause to doubt this; on the contrary, I fear that this is too true regarding every savage race with whom the whites have come in contact. It is neither the province, nor within the limits of this paper, to describe the many curious customs of this people. In their broad features they are the same as all the North Pacific coast tribes, but differ in many essential particulars which it is impossible to enumerate. Territorial right, not only as affecting tribes as a whole, but as individuals, is much valued. Nearly every family has some river where they fish, and its possession is strictly guarded. No Andalusian grandee values his *sangre azul*, or German "Freiherr" his coat of sixteen quarterings, more than do these people their "gentle blood and long descent"! This same Chief of Skidegate was abusing an individual to me on one occasion, when I took an opportunity of remarking that he had as many blankets as he. Now in blankets consists the wealth of these northern tribes, and their acquisition is the *summum bonum* of all ambition. The reply was characteristic: "I don't doubt that; chiefs are always the poorest men, they have to give so much away; but what matters his blankets, his father was nobody"! In a word, he was a *parvenu*! Every family has its arms, or, what is called among the

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\* I have since heard that this mild-spoken ruffian has been assassinated by his own tribe.

Chippewas, its "totem," and no members of a totem can intermarry with an individual possessing the same one. These arms are also engraved on large copper plates, in most grotesque quarterings; and these quarterings can be seen on boxes, &c., in the same family. These plates are about 3 feet long and 1½ broad, slightly hour-glass shaped and rather arched, about a quarter of an inch in thickness. The engraving is very beautifully executed. I have copied several of these, but never could obtain a proper explanation of the symbols on them. These plates are valued at very high rates. Edensaw, a great chief in the northern end of the island, has one which he values at 800 blankets, or 2400 dollars. It has been in his family for many generations, and is of virgin copper. Of late years the traders have been selling them plates of smelted metal, and no greater scandal can be spread regarding a patrician family than to hint that their "copper" is spurious. Nanguenesh, the Chief of Skidegate, nearly killed our interpreter, a Hydah boy, because it had reached his ears that he had been spreading the calumny among our party that his copper was bought in Victoria! A great proportion of the copper for these plates was originally traded from the northern tribes. They have the idea that a great fish vomited them out. Many were undoubtedly palmed off upon them by the Russian Fur Company at Sitka.

They excel all other of the American races in their artistic skill. The beautiful pipes, statuettes, &c., made of slate, may have been already mentioned, as well as jewelry made of silver coin. Most of these would not disgrace a civilized jeweller; and when we consider that all the tools they had to work with were probably a broken knife and a file, their execution is really wonderful, as well as the æsthetic taste displayed in their design. A man called *Waekus* made out of gold coin a pair of bracelets, for the wife of the English Admiral on the station, of such beautiful design and execution, that they were universally admired. The same man afterwards designed the cast-iron railing now ornamenting the balcony of the Bank of British Columbia, in Victoria. He could scratch a fair portrait on ivory, and I have seen a bust of Shakespeare executed by him in slate from an engraving. My friend Mr. A. G. Dallas, late Governor-General of the Hudson's Bay Company territories, has a bust of himself executed in ivory by one of these Indians, than which nothing could be more excellently executed, or a better likeness. Often the figures in the 'Illustrated London News,' of the Assyrian sculptures, have been copied by them in slate, and the ethnologist who hereafter finds (as I have done) the "Man-Bull of Nineveh" among the northern Indians, must be cautious before he builds any extensive theory on the event! One of these Indians carved a chair for me, merely with a knife and some shark's skin, for polishing, of most admirable finish. If they could be induced to settle down and learn something of art, I have no doubt but that some of them would distinguish themselves. They are, however, like all savages, of too roving a disposition even to become adepts in any civilized art.\*

The language spoken by these people, though varying in slight dialectic forms in different portions of the islands, is yet one and the same, and is distinct from all other of the languages of North-West America. It is confined to the Queen Charlotte Islands, and to the neighbouring islands of Kaigani and Chowcheena, peopled by offshoots of this Hydah race. I formed, during my stay, a considerable vocabulary of it, which will be given in my general account of the Indian languages of North-West America in another place. It is sufficient for the present to give the numerals. They are as follow :—

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\* *Waekus*, already referred to, went north, and was shot by his chief in a drunken quarrel.

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|--------------|------------------------|
| 1. Squānsēn. | 8. Stinq-suna.         |
| 2. Stīng.    | 9. Klathen-swānsego.   |
| 3. Squnun.   | 10. Klath.             |
| 4. Slūsick.  | 11. Klath-en-squansen. |
| 5. Klathel.  | 20. Klath-e-stīng.     |
| 6. Klunuthl. | 100. Klath-e-Klath.    |
| 7. 'Cisqua.  | 1000. Lugwa-Klath.     |

The method of forming these numerals is at once apparent.

The Hydahs are divided into seven tribes: 1. The *Skidegates*, claiming the whole of the sound of the same name, and the greater portion of the outside coast of Graham Island, and down to Gumschaw Harbour. 2. The *Laskeeks*; Clew is their chief. They claim the Sound, and divide the rest of the east coast not claimed by the Skidegates between themselves and the next tribe. 3. Clews, about the southern portion of Moresby Island. 4. *Kung-at-adi*, on St. Anthony's Island, and near Cape St. James. Ninsteus is their chief. They claim all the country up to near Tasso Harbour. There are no Indians here, but the (5) *Skitons*, or Gold Harbour Indians, claim all the coast up to Cape Knox. On the west coast of Graham's Island there was once a powerful tribe; but it has now become wholly extinct, and the coast is common ground. The northern end of Graham's Island is claimed by the (6) *Masset*s, whose great chief is Edensaw. He is the wealthiest and most powerful chief on the islands. Masset Harbour is only marked on the chart as a break in the coast, but it runs for about 20 miles in a southerly direction, with a large and beautiful river flowing in at the head. There are two Indian villages on the right-hand side of the harbour, and one on the left. The tribe is the largest in the island, and few of his people go south to Victoria, because he has more power over them than the other chiefs over their people. Edensaw is great friends with the young chief of Kaigani, who is a dangerous customer, and has vowed vengeance against the whites for killing his father, "Captain John," while attempting to make his escape, in a very bold manner, from the prison in Victoria, where he was confined for killing the Tongass chief in the streets of that town in 1860. Traders avoid his village on that account. The *Masset*s travel south to Skidegate's village overland, keeping, for a short distance, by the sea, and take, according to the state of the trail and place where they strike into the interior, from one and a half to three, and even seven days. The *Skidegates* also travel by this way, and their journeys are generally taken in winter, when they are afraid to venture on the outside with their canoes. They are, however, very skilful and courageous canoe-men, sometimes, in crossing from the islands to the mainland, being out of sight of land for several days, and always for a few hours. They generally watch for a favourable breeze, and run over in their large, strong, war-canoes. In Virago Sound are also several villages, but whether they are independent or subject to Edensaw I have not been able to obtain any very certain information. Stanelys River here empties into the sea. It is said to flow out of a large lake in the interior, in which the river at Masset Harbour also takes its rise. On this lake the Indians declare there is a powerful tribe, who would slay the Coast Indians if they ventured there. This belief is common with all the Coast Indians regarding the interior of several portions of unexplored country. These Indians, only living on the coast, look upon the interior just as quaint Sir John Mandeville did when he came to a country he knew nothing about, "This lande is all full of devills." The Indians also cross overland from Virago Sound to the opposite coast, and represent the country as thickly wooded and mountainous. 7. The *Gumschaws* claim the harbour of the same name, and the adjoining territory. In 1839 the Hudson's Bay Company estimated the number of Indians on these islands at about 8500, but as these are derived from what they call their "trading lists," which generally, I have found, under-estimate their number,

the population at that date may be taken at 10,000. I have heard it estimated even much higher. Since that period intestine and foreign war, disease, debauchery, and general decay, have decimated their number. I do not suppose that, at the present day, there are more than 5000 Hydahs, all told, and not more than 3000 permanently, or at one time, resident on the islands, many annually coming south to Victoria, Puget Sound, &c., to work for the whites, or to prostitute their women. Small-pox has also destroyed numbers, but not to the same extent as in other tribes—their insular position protecting them. In 1862, when this disease broke out among the southern tribes, the Hydahs, who were wintering in Victoria, fled north with the seeds of infection. While waiting, as is their custom, on an island off the mainland for a favourable chance to cross over, the disease broke out in all its virulence. Not one survived. A trader described to me, coming upon their bodies in the ensuing spring, that a more terrible sight no man ever looked on than these ghastly skeletons, surrounded with their rotting canoes and treasures. For a long time no Indian would approach this island, and, for aught I know, the Hydahs' bones lie unburied yet. Vice, and its accompanying diseases, have also harried them, and numbers annually succumb in Victoria to debauchery. As might be expected, they are not increasing in number, but the contrary; and few children are seen in their villages. I had an Indian boy as interpreter, who used to count on his fingers, with the most cold-blooded callousness, when the last of his race would become extinct. I believe that he estimated that interesting *denouement* at twenty years! The Hydahs generally cross to the mainland from the northern portion of the island, but, in fine weather, the Skidegates, and other southern tribes of the island, cross to Nepean Sound, near the village, and on the territory of the Bella Bella Indians, with whom they have long been at war; and, though peace has been made, yet it has as repeatedly been broken through by some treacherous, bloodthirsty act on the Hydahs' part. The Bella Bella tribe was at one time very powerful, and the terror of the Hydahs, for whom they used to lie in wait. On one occasion they are said to have captured upwards of 100 of that tribe on their way south, and to have beheaded them in the most cruel manner on an island where the village is now built. Times are changed, however, and the Bella Bellas have been thinned by small-pox. The Hydahs, however, when not in large numbers, prefer going outside, to risk passing the village, which is now removed to an island, to prevent surprise. A sad time have these Hydahs before reaching Victoria, for they are hated, and, *igitur*, attacked by every tribe powerful enough to do so.

6. *Vegetation, Soil, &c.*—The whole of the islands, with the exception of some insignificant patches of open land, are wooded down to the water's edge, the sea in many places laving the very roots of the trees. This forest consists of the ordinary coniferæ and deciduous trees common to the North Pacific. Menzies spruce (*Abies Menziesii*, Dougl.) is the most common tree, and in some places attains gigantic proportions. The undergrowth is mainly "*salal*" (*Gaultheria shallon*, Pursh.), which, in this wet climate, attains much greater luxuriance than further south; *Abies Douglasii*, Lindl., I did not see; and, as far as my observation extends, this tree does not extend further north than Milbank Sound in 52° N. lat. No sort of cultivated plant is grown by the natives except potatoes, which are produced in more considerable quantities than by any other tribe or race of Indians, and of very excellent quality. At one time there was, and for all I know to the contrary is still, a sort of annual "*potato fair*" held on these islands, where other tribes came to barter their products for the Hydah potatoes. My visit was rather too early in the season for flowering plants or the higher cryptogams, and, so far as my collection went, I did not discover one plant new or peculiar to the islands.

The cryptogamic plants collected by me on these islands, or in the neigh-

bouring sea, will be found incidentally noted in papers in the 'Transactions of the Botanical Society of Edinburgh,' 1867-8 et seq.

7. *Zoology, Fisheries, &c.*—Most of the wild animals of the North Pacific are found on these islands or frequenting the sea laving their shores. A remarkable exception is, however, any species of deer or wolf, a natural sequence, though both are most abundant on the mainland immediately adjoining; racoon (*Procyon Hernandezii*) are also said to be absent. I saw no beaver either, but they are reported to be found. Numbers of bears (*Ursus Americanus*) and sea otters are found, and on the west coast and on Prevost's Islands are many large fur seals (*Callorhinus ursinus*, (Schreb.) Gray?). Only one species of salmon visits the islands. This is probably the *Salmo quinnat*, Rich., and arrives in May. Accordingly, most of their supplies of salmon are bought from the Tsempsheans and other tribes on the mainland. Sea-fish are abundant enough. Halibut are caught in great quantities on the west coast of Graham's Island, and hither the Indians resort every year to catch, split, and dry them for winter use.

8. *Capabilities for Settlement.*—An Anglo-Saxon cannot leave any subject without scrutinizing the *cui bono* prospects of it, and to leave a country without considering its colonising capabilities would be playing false to the instincts and genius of our race. A very few words will dismiss this subject and conclude these geographical memoranda. The soil is poor, and the country being thickly wooded, I do not think that, even under the most favourable circumstances, it will ever be worth settling on for agricultural purposes. The climate is so wet that, though wheat and other cereals might be cultivated, crops would be very precarious. So long as the better countries of Vancouver Island, British Columbia, &c., are lying waste further south inviting settlement, Queen Charlotte Islands must remain only hopeful as a mining and aboriginal stronghold. Hunters might find it profitable to kill sea otters here; these animals being very valuable and said to be most abundant on the western shores of the islands. The fierce character of the natives would, however, render any attempts at permanent settlements, unless in strong parties, dangerous. In one sentence, to conclude, these islands are more interesting to the geographer than to the colonist; to the miner they may be valuable, but to the agriculturist they are useless.

# 11. Letter from Mr. T. T. COOPER, on the course of the Tsan-po and Irrawaddy and on Tibet.

"DEAR SIR,

"Calcutta, 8th May, 1869.

"While travelling in the Eastern Kingdom of Tibet last year, I met several French missionaries, and induced one of them who has travelled extensively in that part of Tibet, to put on paper the notes, copy of which I enclose.

"You will observe that he remarks,—'I am almost certain that the great River Yar-Kioute-tsan-Po, which comes from the west of Tibet, and passes a little south of Lassa, is the same as the Irrawaddy, and does not flow into the Brahmapootra.'\* When he told me this in Bathang, I was struck with the great importance, geographically speaking, of determining this question, and from time to time made inquiries relative to this river. The most important, though not in my mind conclusive, information that I got was from a Chinese

\* Note by Sir H. C. Ravelinon :—"Zy-yu, on the San-po is only 25 miles from Sudiya, according to Cooper. How, then, is it possible that the Brahmapootra, a great navigable river, can be formed in this interval?"